



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
-----------------	-------------	----------------------	---------------------	------------------

09/653,070

08/31/2000

MASAYUKI MIZUNO

CA1075

4300

23493

7590

05/05/2004

SUGHRUE MION, PLLC

401 Castro Street, Ste 220

Mountain View, CA 94041-2007

EXAMINER

VARTANIAN, HARRY

ART UNIT

PAPER NUMBER

2634

DATE MAILED: 05/05/2004

4

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/653,070

Applicant(s)

MIZUNO, MASAYUKI

Examiner

Harry Vartanian

Art Unit

2634

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE ____ MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 10 February 2004.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-32 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1-4, 6-9, 15-18, 21-28 and 30-32 is/are rejected.
- 7) ☒ Claim(s) 5, 10-14, 19, 20 and 29 is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 10 February 2004 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. ____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date ____.
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. ____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: ____.

Art Unit: 2634

Detailed Action

1. Claims 1-32 are pending in this application.

Response to Amendments

1. The reply filed on 2/10/2004 is not fully responsive to the prior Office Action because of the following omission(s) or matter(s): the applicant does not discuss independent Claim 15. Rather, he states that Claim 15 is dependent on Claim 1 and only argues on independent Claim 1 and 26. See 37 CFR 1.111. Nevertheless, the argument for Claim 26 will be considered for Claim 15, since both Claims are substantially the same.

2. Applicant's arguments filed 2/10/2004 with respect to the rejection of Claims 1, 26 under 35 U.S.C. § 102(b) have been fully considered but they are not persuasive. Regarding the argument for Claim 1, applicant states that Newman is not an appropriate reference since the patent is for an atm network not an integrated circuit. This argument is not valid, since neither Claim 1 or 26 mention an "integrated circuit". An ***interconnect circuit***, in the broadest sense, may include an integrated circuit but also can be applied to ANY circuit connecting two devices. Moreover, Newman even mentions that his invention "is a method and apparatus for reactive congestion control in an asynchronous transfer mode (ATM) network where the network is formed by the ***interconnection of nodes***." (Column 5, Lines 64-67)

Regarding the argument that Newman does not meet the limitation of selectivity interrupting and reestablishing communications along the data line, Newman mentions:

"Each node is an ATM switch which includes input controllers (IC's), a switch fabric (SF), output controllers(OC's) and a node control (C). The node control is used for functions including ***connection establishment and release***, bandwidth reservation, ***congestion control***, maintenance and network management." (Column 2, Lines 2-8)

Art Unit: 2634

"For example, flow control has been used by the transport layer to keep one host from saturating another host and by one node to prevent that node from saturating its neighbor node. However, flow control has not been effective to solve network-wide congestion." (column 3, lines 34-40)

Therefor, each driving circuit along the line has the option of changing the characteristics of the channel selectivity based on congestion, bandwidth, or network management. It should also be noted that controlling bandwidth reservation by each node can result in data transmission adjustment.

Regarding independent Claim 15, the response to the argument above also applies here since the nodes in Newman's atm nodes do include driving circuits to send data and congestion signals.

Claim Rejections - 35 USC § 102

The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

5. Claims 1-4, 6-9, 15-18, 21-28, and 30-32 are rejected under 35 U.S.C. 102(b) as being anticipated by Newman(US Patent No. 5,457,687). Regarding Claims 1 and 2, Newman discloses a "circuit with a virtual channel connection of the source (S) sending information in a forward direction (F) to a destination (D) and with a reverse direction (R) for transmitting control signals to the source (S)." (Column 7, Lines 17-20) Newman proceeds to describes his reverse direction circuit as sending congestion signals(Abstract). Newman describes his virtual channel connection as having multiple nodes in between(Fig 2) that are "interconnected" to send data(Column 5, Lines 67). Newman also discloses that typical nodes in an ATM switch have node controllers which has "functions including connection establishment and release, bandwidth reservation, congestion control,

Art Unit: 2634

maintenance and network management." (Column 2, Lines 5-8) Each time a buffer fills up the destination queue, Newman states that a backward explicit congestion notification(BECN)(Column 52, line 12-13) is generated(Column 52, Lines 49-53). This BECN is selectively generated based on the load of the network(Column 52, Lines 49-53).

Regarding Claim 3, Newman discloses the switches in an interconnect circuit as having buffers, which are storage elements, to store data(Column 2, Lines 39-48).

Regarding Claim 4, Newman discloses that a backward explicit congestion notification(BECN)(Column 52, line 12-13) is generated "If the number of cells stored in the destination queue (Q) exceeds a threshold, the filter (F) will generate BECN cells. With no filtering in the manner previously described, for each incoming cell, one BECN cell will be generated and returned to the source transmitter (T) of the incoming cell." (Column 52, Lines 49-53)

Regarding Claim 6, Newman discloses that his network has a plurality of channels, i.e. data lines, that are each responsive to congestion control signals(Column 61, Lines 34-42). Also regarding the selective interrupt and reestablishment of transmission, Newman mentions that each node can have "flow control...to keep one host from saturating another host and by one node to prevent that node from saturating its neighbor node." (Column 3, lines 34-40)

Regarding Claim 7, Newman in Fig 4 discloses a plurality of virtual channels which are shown to be arranged in a parallel manner with one node controller(item 13).

Art Unit: 2634

Regarding Claims 8 and 9, in Fig 3 Newman discloses an interconnect containing "forward circuitry"(Column 8, Line 60) and "reverse circuitry"(Column 8, Line 60). The connections for these circuits in the nodes are shown in Fig 3 with items 6-0 and 7-0, respectively. In Fig 3, one also sees a plurality of these circuits. Although the applicant claims that the devices on his data line are "driving circuits", "forward circuit" is a similar phrase to describe an apparatus that drives a transmission line. Newman also describes each switch in his interconnect circuit as having buffers(Column 2, Lines 39-48). Since a buffer is a type of storage element, the limitations of Claim 8 are met.

Furthermore, regarding Claim 9 Newman describes his switch as having a filter that uses a flip-flop to store control logic(Column 54, Lines 28-35). Since a flip-flop is a type of device that performs logical functions, the limitations of Claim 9 are met.

Regarding Claims 15, 16, and 17 Newman discloses that each node contain "forward circuitry"(Column 8, Line 60) and "reverse circuitry"(Column 8, Line 60). The connections for these circuits in the nodes are shown in Fig 3 with items 6-0 and 7-0, respectively. In Fig 3, one also sees a plurality of these circuits. Although the applicant claims that the devices on his data line are "driving circuits", forward circuits is a similar phrase to describe an apparatus that drives a transmission line. Newman discloses that these nodes are selectively interrupted by the generation of said BECN signals by the destination or nodes. Fig 3 also shows the congestion and data signals moving in opposite directions. Moreover, Claim 17 is rejected on the basis of Fig 3 where the congestion signal is shown to progress along the congestion line in sequence from left to right.

Art Unit: 2634

Regarding Claim 18, Newman discloses that his invention "on receipt of a BECN cell on a particular virtual channel, a source reduces its transmission rate for the indicated virtual channel. If no BECN cells are received on a particular virtual channel for a certain period of time, a source may gradually restore its transmission rate."(Abstract) This indicates that there are two signals. Each signal tells the source and the nodes on interconnect whether or not to send data on the line and store it if congested.

Regarding Claim 21, Newman discloses that his network has a plurality of channels, i.e. data lines, that are each responsive to congestion control signals depending on the traffic on the data line(Column 61, Lines 34-42).

Regarding Claim 22, Newman in Fig 4 shows his plurality of virtual channels are shown to be arranged in parallel manner with one node controller(item 13).

Regarding Claims 23 and 24, Newman discloses that the switches in an interconnect circuit have buffers(Column 2, Lines 39-48) used to store information when a BECN flag is set. Furthermore, Newman describes this switch as having a filter that uses a flip-flop to store control logic(Column 54, Lines 28-35). As previously stated, each switch also has driving capabilities. Regarding Claim 24, a flip-flop is a type of device that performs logical functions thereby meeting the limitations of the Claim.

Regarding Claim 25, Newman states that his invention "on receipt of a BECN cell on a particular virtual channel, a source reduces its transmission rate for the indicated virtual channel. If no BECN cells are received on a particular virtual channel for a certain period of time, a source may gradually restore its transmission rate."(Abstract) This indicates that

Art Unit: 2634

there are two signals. Each signal tells the source and the nodes on interconnect whether or not to send data on the line.

Regarding Claims 26-28, in Fig 3 Newman discloses an interconnect containing "forward circuitry"(Column 8, Line 60) and "reverse circuitry"(Column 8, Line 60). The connections for these circuits in the nodes are shown in Fig 3 with items 6-0 and 7-0, respectively. In Fig 3, one also sees a plurality of these circuits. Although the applicant claims that the devices on his data line are "driving circuits", "forward circuit" is a similar phrase to describe an apparatus that drives a transmission line. Newman discloses that these nodes are selectively interrupted by the generation of said BECN signals by the destination or nodes. Moreover, Claim 27 is rejected on the basis of Fig 3 where the congestion signal is shown to progress along the congestion line opposite to the direction of data flow.

Moreover, for Claim 28 Newman discloses switches in an interconnect circuit as having buffers(Column 2, Lines 39-48) that store information when a BECN flag is set.

Regarding Claim 30, Newman discloses that his network has a plurality of channels, i.e. data lines, that are each responsive to congestion control signals depending on the traffic on the data line(Column 61, Lines 34-42). The selective interruption of transmission is claimed by Newman on Column 52, Lines 49-53.

Regarding Claim 31, in Fig 4 Newman shows a plurality of virtual channels to be arranged in parallel manner with one node controller(item 13).

Application/Control Number: 09/653,070

Art Unit: 2634

Regarding Claim 32, Newman discloses that his switch has a filter that uses a flip-flop to store control logic(Column 54, Lines 28-35).

Allowable Subject Matter

4. Claims 5, 10-14, 19-20 and 29 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Harry Vartanian whose telephone number is 703.305.8698. The examiner can normally be reached on 9-5:30 Mondays to Fridays.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Stephen Chin can be reached on 703.305.4714. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Harry Vartanian
Examiner
Art Unit 2634

HV


STEPHEN CHIN
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 2600